transmission type liquid crystal display 29 is exposed for recording at an exposure angle of θe. Further, the element hologram image d2 is assumed to have an image size, in terms of resolution, of 640 pixels in the vertical direction and 480 pixels in the parallax direction.

Hence, the viewing point conversion processing is an image processing whereby the element parallax images d1 in the number of m sheets that constitute the parallax image data string D3 are interchanged to form the element hologram images d2 in the number of "n" sheets so as to reconstruct a new set of the element hologram image data D5. The viewing point conversion processing is executed by interchanging the element parallax images d1 by a minimum unit thereof, namely, by an element image in a strip-form with 640 pixels in the vertical direction and one pixel in the horizontal direction. By sampling this element image information from the element parallax images d1 in the number of "m" sheets, the element hologram image data D5 having an image size of 640 pixels in the vertical direction and 480 pixels in the horizontal (parallax) direction is reconstructed.

Further, with reference to FIG. 9, the viewing point conversion processing will be described more specifically. FIG. 9 shows a state of one element hologram image d21 selected from among those shown in FIG. 8, and how it is reconstructed. The element hologram image d21 is reconstructed through arithmetic operation to be executed for respective image information at respective sampling points mp11, mp12, ---, mp1k on the viewing point distance dv whereby each of them is determined from which

element parallax image d1 in the parallax image data string D3 to be mapped.

For this mapping, assume an imaginary line connecting between an exposure point ep1 and respective sampling points mp11, mp12, ---, mp1k of the element hologram image d21, namely, a mapping line ml. A parallax image to be selected from among the parallax image data string D3 is determined to be that which has a closest viewing point to the point of an intersection between this mapping line ml and a plane DV on the viewing point distance dv, namely, respective sampling points mp11, mp12, ---, mp1k. By the way, for simplification of explanation, it is shown in this drawing that all of the viewpoints of the parallax image data string D3 and all of the sampling points are shown to coincide with each other, however, needless to mention, they do not necessarily coincide with each other depending on conditions of setting of imaging (image capturing) parameters for the parallax image data string D3, and/or setting of parameters for the holographic stereogram 51 to be produced. Because the element hologram image d21 has the image size of 640 pixels in the vertical direction and 480 pixels in the horizontal direction as described above, the number of sampling in the parallax direction, namely, the number of pixels therein is "480", hence k=480.

As for the sampling point mp11, a parallax image having the closest viewing point thereto, namely, an element parallax image d11 having its viewpoint at mp11 is selected. Then, a piece of parallax information of 640 vertical pixels and one horizontal pixel existing at

a cross point op1j on the surface of a screen DD at the image shooting distance df, at which the mapping line m11 interconnecting between the exposure point ep1 and the viewing point mp11 of that element parallax image d11, and extending toward a screen of the element parallax image d11, meets with the screen DD, is sampled and mapped to the sampling point mp11. Here, op denotes sampling points of the parallax image data string D3, and each parallax image has sampling points to the number of j. For example, the element parallax image d11 has sampling points at op11, op12, ---, op1j. Because each element parallax image dl is captured with an image size of 640 pixels in the vertical direction and 480 pixels in the horizontal direction, j=480.

In the viewing point conversion processing, by executing the image processing described above for the other sampling points mp12, ---, mp1k, respectively, a new element hologram image d2 is reconstructed from the parallax image data string D3. Further, in the viewing point conversion processing, the similar image processing is repeated with respect to the other exposure points ep12, ---, ep1j so as to reconstruct sequentially element hologram images d22, d23, ---, d2n at respective exposure points ep. These element hologram image data D5 reconstructed as described above are displayed on the transmission type liquid crystal display 29 sequentially, and the object light L2 transmitted through this liquid crystal display 29 which interferes with the reference light L3 is exposed and recorded as the element hologram image in the strip-form sequentially on the hologram recording medium 4.